THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte ROBERT E. STERLING and EUGENE P. GOLDBERG

_____

Appeal No. 95-1209
Application No. 07/842,480[1]

_____

ON BRIEF

_____

Before JOHN D. SMITH, GARRIS and WARREN, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

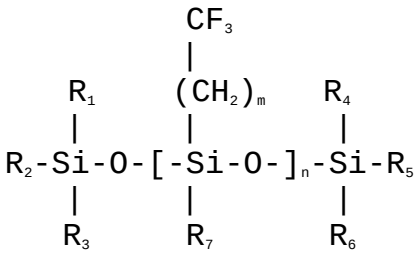
This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1, 3, 4 and 11. Claims 5 to 10 have been withdrawn from consideration by the examiner, 37 CFR § 1.142(b), and are not subject to this decision.

[1] Application for patent filed February 28, 1992.

The subject matter on appeal relates to compositions of matter formed by melt blending a thermoplastic polymer and a fluorinated polysiloxane additive to provide a homogenous blend, then cooling the composition. The additive is said to concentrate at the surfaces of the cooled blends, even at low overall concentrations, and to provide low surface energies, including non-adherent surface characteristics and low friction, which enhance molding operations. Biological and biomedical applications are disclosed to be particularly advantageous. Specification at pages 5-6.

Claim 1 is representative of the claimed subject matter:

> 1. A composition of matter formed by melt-blending a thermoplastic polymer and from about 0.01% to less than about 1.0%, by weight based on the weight of the composition, of an additive comprising a polyfluoroalkylsiloxane, said additive having a lower surface energy than that of said polymer; said melt-blending resulting in a substantially homogenous admixture of said polymer and said additive; said admixture, upon cooling, resulting in a solid composition wherein a concentration of said additive through a cross-section of said solid composition is lower in the interior thereof and higher at the surfaces thereof; said additive being a polyfluoroalkylsiloxane having the formula:



(I)

wherein R_1, R_2, R_3, R_4, R_5, R_6 and R_7 may be the same or different and may be alkyl, cycloalkyl or aryl; R_7 may also be $-(CH_2)_m-CF_3$; m is an integer from 0 to 20, and n is an integer from 1 to 5,000; or

said additive being a silanol terminated derivative of said polyfluoroalkylsiloxane or a copolymer of said polyfluoroalkylsiloxane with an alkyl, aryl or alkyl-aryl-siloxane.

PRIOR ART

The examiner has applied the following reference in the prior art rejection advanced on this appeal:

Miyake et al. (Miyake)[2] (Japanese Kokai Application)	1-282,267	Nov. 14, 1989

The examiner has cited the following references to show "a state of fact" (Answer, pages 2-3):

Yamamoto et al. (Yamamoto)	3,758,661	Sep. 11, 1973
Thomas et al. (Thomas)	5,108,632	Apr. 28, 1992 (filed Oct. 18, 1991)

[2] Our understanding of this reference is based upon the PTO translation of record.

Yamada et al. (Yamada) 5,174,924 Dec. 29, 1992
(filed June 4, 1990)

Hawley's Condensed Chemical Dictionary, 935 (11th ed., New York, Van Nostrand Reinhold, 1987) (Hawley's).

REJECTIONS

(1) Claims 1, 3, 4 and 11 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

(2) Claims 1, 3, 4 and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the combined disclosures of Miyake.

For the reasons set forth post we shall not sustain these rejections (although appellants have argued the separate patentability of claim 11, in view of our disposition of this appeal, we need not consider claim 11 separately.)

DISCUSSION

The examiner has rejected the claims as being indefinite in view of the claim 1 phrase "copolymer of said polyfluoro-alkylsiloxane." The examiner maintains it is not clear how a compound that is not silanol terminated can be copolymerized.

Claims are definite if they set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). The claims are to be read, not in a vacuum, but in light of the prior art and the disclosure, as interpreted by one of ordinary skill in the art. Moore, 439 F.2d at 1234, 169 USPQ at 238. As the examiner recognized, and as appellants acknowledge (Brief at pages 7-8), one of ordinary skill in the art is well aware that copolymers of compound (I) with other siloxanes would be formed from hydrolyzable derivatives (such as silanols) of (I). We also observe that it is not uncommon to name copolymers according to the structures comprising the backbone, and that groups that are lost in condensation reactions are not always included in the name of the polymer. Since, on the present record, it is clear that one of ordinary skill in the art would understand and not be misled as to the scope of the claim, we cannot sustain this rejection.

The examiner has rejected the claims under 35 U.S.C. § 103(a) as obvious over Miyake; the other cited references are relied upon to establish the range of values of melting

points of the reference thermoplastic polymer. Miyake discloses, in a comparative example, a copolymer blend of high density polyethylene (HDPE) (HIZEX 2500) with 3 weight percent of a compound (I). The blend is prepared by kneading the mixture at 150EC for 30 minutes. Miyake at translation page 9. Both the examiner and appellants appear to agree that materials denominated as HDPE typically melt in the range of 120 to 130EC. The examiner maintains that the improved Q value shown for comparative example 2 (Table at Miyake translation page 11) (2.08×10^{-2} ml/s) compared to unadulterated HDPE (id., comparative example 3) (1.65×10^{-2} ml/s) is sufficient to demonstrate that the amount of additive is a result-effective variable for Q. Accordingly, the examiner concludes one of ordinary skill in the art would have been motivated to use “less than about 1%” of the additive in order to obtain blends that exhibit a lesser improvement in the parameter Q. The examiner maintains that the burden is on appellants to demonstrate that the material produced by Miyake would not meet the instant limitations.

Appellants traverse, urging that a homogenous blend of additive and polymer cannot be obtained under the conditions

of Miyake. Brief at pages 9-10; Reply Brief at pages 2-4. In support of their contention, appellants have provided evidence that melt-processing temperatures for HDPE are typically in the range of 200EC, considerably higher than the melting temperature or the 150EC used by Miyake. Appellants also disclose the use of a twin-screw extruder for obtaining the homogenous melt blends that are said to be prerequisites for the final product. Single screw extruders did not provide sufficient blending in the comparative example presented in the specification at pages
10-11. Moreover, appellants urge the examiner's reliance on a comparative example vitiates the motivation to use at most only one third as much of an additive that Miyake appears to regard as providing an inferior degree of improvement. Brief at pages
15-16.

As emphasized by appellants, the example relied on by the examiner is a comparative example. The thrust of Miyake is to obtain significantly higher values of Q, which would require higher, not lower, concentrations of additive. As a predecessor to our reviewing court explained:

> Where . . . the prior art disclosure suggests the outer limits of the range of suitable values, and that the optimum resides within that range, and where there are indications elsewhere that in fact the optimum should be sought within that range, the determination of optimum values outside that range may not be obvious.

In re Sebek, 465 F.2d 904, 907, 175 USPQ 93, 95 (CCPA 1972). On the present facts, we conclude that Miyake would not have motivated one with ordinary skill in the art to explore ranges of concentration of a comparative material at no more than a third of what has been disclosed in a comparative example to provide only a slight improvement in a desired property.

On the present record we conclude that the examiner has not made out a prima facie case of obviousness, and therefore we also cannot sustain the examiner's § 103 rejection.

The decision of the examiner is reversed.

REVERSED

JOHN D. SMITH Administrative Patent Judge	
BRADLEY R. GARRIS Administrative Patent Judge	BOARD OF PATENT APPEALS AND INTERFERENCES
CHARLES F. WARREN Administrative Patent Judge	

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